

# WEATHER IN THE GROCERY STORE

## GLOBAL WARMING & WORLD FOOD PRODUCTION

BY DAN ARMSTRONG

A warmer earth speeds up the global water cycle: the exchange of water among the oceans, atmosphere and the land. Higher temperatures cause more evaporation, and soils tend to dry out faster. Increased amounts of water in the atmosphere will mean more rain or snow fall. We may be seeing the first signs of change in the water cycle. Since the beginning of the century, precipitation in the United States has increased about 6%, while the frequency of intense precipitation events (downpours of more than 2 inches per day) has increased 20%. Such events can cause flooding, soil erosion, and even loss of life. In some midcontinental areas increased evaporation has led to drought because the heavy rain fell elsewhere.

—from the U.S. OFFICE OF SCIENCE & TECHNOLOGY POLICY (1997)

In the last year we've heard a lot about global warming, El Niño, and some vague suggestion that the climate is changing. We're all pretty much aware of the greenhouse effect. What it is and how it works. It's been in and out of the media for more than a quarter of a century now. We've seen the diagrams in the science section of the newspaper. The sun's radiation passes through the atmosphere on the way in, but as it re-radiates out from the surface of the Earth at lower frequencies it gets trapped by a variety of complex gas molecules, primarily carbon dioxide and methane, and nitrous oxide. Fine. The question is what does this have to do with anything 'real'? Like making the house payment. The kind of car we drive. The price of bread. How will a degree or two or five really affect our lives? Can the climate actually change in any significant way? Doesn't such a thing take thousands, if not tens-of-thousands of years? Is this all a bunch of scientific abstraction — like one day the sun will burn out? Or could it be that we are finally coming face to face with the fact that humans and nature are falling out of balance.

United States President Bill Clinton addressed the topic of global warming in a string of public speeches he made during the fall of 1997. For the most part, the President was paving the political way for the U.S.'s presentation at the Convention on Climate Change that would take place in Kyoto, Japan, later that year in December. He was also responding to pressure from the insurance industry's lobbying groups. The turbulent weather of the previous four years, floods in the Midwest in 1993 and the surge of hurricanes across the South in 1994-95, had caused weather related insurance claims in the '90s to surpass the \$45 billion mark, nearly tripling the total for the entire span of the '80s. Clearly the insurance companies had good reason to be concerned about increasing concentrations of carbon dioxide in the air.

In an October 1997 speech to the National Geographic Society, President Clinton described the situation as "one of the most significant challenges of the 21st century":

Many previous threats came from single enemies, but global warming derives from millions of sources. Many previous threats posed clear and present danger; global warming is far more subtle, warning us not with roaring tanks or burning rivers but with invisible gases, slow changes in our surroundings, increasingly severe climatic disruptions that, thank God, have not yet hit home for most Americans. But make no mistake, the problem is real. And if we do not change our course now, the consequences, sooner or later, will be destructive for America and the world.

Two weeks later, the President held a conference in Washington, D.C. for American business leaders to educate them on the state of the knowledge. The documents distributed there substantiated the claim that, yes indeed, "the balance of evidence suggests there is a discernible human influence on global climate change." In years to come "the United States could experience temperature increases of 5% to 10% F (leading to) soil dying in some regions...estimated at 10% to 30% ...during the summer growing season." In the next 100 years it is possible that "the ideal range of some North American forest species will shift by as much as 300 miles to the north," and "economically important species such as the sugar maple, could be lost from New England by the end of the next century." (from *Climate Change: State of Knowledge*, U.S. Office of Science & Technology, 1997)

After what has been decades of denial, President Clinton dared to open one of the most critical problems of our times. For more than 40 years now scientists and researchers have sounded warnings about the accumulation of greenhouse gases in the atmosphere, global warming and the significance of climate change in our lives. In the long term population pressure coupled with climate change will place a tremendous premium on the production of grain, the basic foodstuff of 90% of the world. It is highly possible a bushel of wheat will trade evenly with a barrel of oil in our lifetime.

This is but a glimpse into the bigger picture. We have not been taking care of our life support system in general — that is, the overall health of the Earth's biosphere. The impact of our industrial presence on the planet is beginning to catch up to us. Global warming is cold proof of that. In addition to pumping six billion tons of carbon dioxide into the atmosphere each year, cropland worldwide is nearing a maximum — in fact, it has been decreasing due to industrial sprawl and erosion at a rate of 1% annually — while population grows steadily at 1.4%.

Global management is a real concern. Problems like climate change only make themselves manifest long after the situation is irreversible. The same is true for nearly all environmental issues. This is not new information. For the last three decades economic demands have contributed to a dangerous denial of these critical trends. After ten thousand years of human civilization we have achieved an incredible cultural wealth. We have near-deifying knowledge and technical ability, yet with it — in spite of it — we befool the air we breathe, heedlessly exhaust



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our natural resources and jeopardize our own means of sustenance. This is what a United States President should have firmly stated 25 years ago.

### Some Recent History:

The first serious consideration for the management of human populations and world food resources came from Thomas Malthus in 1798 in his *Essay on the Principles of Population*. But it wasn't until August 6, 1945, when the *Enola Gay* dropped the first atomic bomb on Hiroshima that global awareness truly came of age. A new measure of humankind on a small planet became terrifyingly obvious that day. The interconnectedness of all society clarified, and a new kind of thought became fashionable. World Economic Policy. United Nations. Nuclear Winter. World Banks. And 'Think Tanks'.

In the aftermath of World War II, and earlier at the International Roundtable at Bretton Woods, New Hampshire (also known as the United Nations Monetary & Financial Conference; July 1-22, 1944), it became an economic imperative to know the future. In quiet secretive settings brain trusts like the Rand Corporation and the Brookings Institute appeared, fastening teams of powerful minds on the problems of the future, plotting financial, economic and agricultural strategies upon all variety of socio/political scenarios, stretching them out to the end of the century and into the new millennium. At the end of all those extrapolations were global population, petroleum reserves, food supplies and nuclear war. During the 1950s, behind the closed doors of these mystical think tanks, it gradually became evident that the momentum of industrialization could overrun the carrying capacity of the Earth. If the public hadn't fully understood the finite nature of our world by 1960, you can be certain the most powerfully positioned leaders of world commerce had gained appreciation of the ultimate values of oil, timber products and water rights.

The dreaded Malthusian premise came of age in the first decade of the Cold War. The edge of civilization began to show in the reflection of the future. Like the CIA's blunders at the Bay of Pigs in 1961, this became the kind of knowledge kept out of the public's sight as long as possible. Position needed to be secured. Economic strategies accessed. World food resources evaluated. But the situation could not be hidden. It became as obvious as the smog in Los Angeles, the smell of the Hudson River, and the growing epidemic of cancer. In 1962, Rachel Carson published her exposé on the dangers of DDT, *Silent Spring*. The Age of Environmentalism was underway. The globe shrank to but a village.

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These were still relatively naive times. In 1968, just as the world population growth rate peaked at 2.1%, Paul Ehrlich published his best-selling benchmark alarm *The Population Bomb*. A new plateau of consciousness was surfacing in humanity. We were becoming self-conscious of our own fertility. In that same year a group of concerned scientists and businessmen from all over the world formed the Club of Rome to initiate a "Project on the Predicament of Mankind." They funded an MIT research team to create a computer program to model the impact of civilization on the Earth's ecosystem. Trends in population, industrialization, food production, pollution and nonrenewable natural resources were plotted into the next 100 years. In 1972 this work was published under the title of *The Limits to Growth*. Nine million copies were sold in 24 languages.

With no changes in the economics and environmental policies of those times, the MIT model projected a complete and/or environmental collapse before the year 2100. Despite the wide sales, the report was heavily criticized and labeled just another doomsday projection. Even to this day, the MIT model "World 3" is referred to with disdain or a sardonic chuckle. The Central Intelligence Agency found it provocative enough, however, to solicit an independent investigation of the situation in 1974. Their report *Potential Implications of Trends in World Population, Food Production & Climate*, declassified in 1976, issued an equally bleak prognosis that concentrated on the economics and politics of dwindling world food supplies. "There would be increasingly desperate attempts on the part of powerful but hungry nations to get grain any way they could. The population problem would solve itself in the most unpleasant fashion," the report observed.

In this same era the United Nations began to ease into its present position as the prime steward of global management, not just politics but as overseer to population growth, food distribution and agriculture. In 1974, when drought and low harvests brought dramatic increases in world food prices, the UN's Food & Agriculture Organization (FAO) sponsored its first World Food Summit in Rome. Programs of increased fertilization, pesticide use and irrigation produced monumental gains in worldwide grain production over the next 13 years.

World grain reserves, our best defense against food shortages and one of the surest measures of the world food situation, climbed to record heights during those 13 years. Then in 1988 an enduring drought across the grain belt of the United States cut harvests by nearly a quarter. From that year on, grain reserves have steadily fallen. When 70 days of world grain supply is considered the minimum level of security for reserves — that is, to make up for one bad harvest, carryover stocks in 1995 were at an all-time low of 52 days. Grain prices doubled during that year. But the higher prices gave farmers added incentive for the 1996 crop, and the U.S. "brought back into production all the land idled under its Commodity Supply Management Program" and "The European Union reduced its set-aside areas from 12% to 10%." (Lester R. Brown, *Vital Signs 1997*, Worldwatch Institute) Despite a record grain harvest in 1996, carryover stocks edged up to only 57 days. This leads to the reason for the World Food Summit in Rome, November 1996.

### The World Food Summit 1996:

The recent World Food Summit presented the two prevailing views regarding the severity of food resource demands for the near future. The dominant voice came from the sponsor of the Food Summit, the United Nations Food & Agriculture Organization. Quoting from the FAO technical papers prepared for the World Food Summit, the world's food situation is one of critical needs but not dire emergencies — yet:

The overall conclusion is that, without deliberate changes from the normal course of events, many of the food security problems of today will persist and some will become worse. This need not be so, however, if action is taken now to promote poverty-reducing growth and agricultural development as well as to put agriculture on to a more sustainable path.

The main problem is that there is very little arable land left in the world not already under plow. To provide for the growing number of humans, 80 million a year, almost all increases in food production must come from intensifying agricultural techniques on existing farmland. The drawback is that intensified farming — generally increased irrigation, heavy fertilization and more pesticides, the answer to the problem in 1974 — already has been pushed to extremes. It is hard on the soil and is difficult to sustain. The long-term effect of these methods is to turn crop-land into desert. Overall, it will take a conscious and concerted effort to feed the world sustainably for the next 50 years as the world population climbs toward the 10 billion mark.

The second position at the Summit came from the Worldwatch Institute, a non-profit research organization funded primarily by conservative sources including the Rockefeller Brothers Fund, The Ford Foundation and the Andrew W. Mellon Foundation. Along with the United Nations, the Worldwatch Institute is one of the world's foremost and respected environmental information gatherers. Encouraging the need for constant vigil over the health of planet Earth, the Worldwatch Institute published its first *State of the World: Report on Progress Toward a Sustainable Society* in 1984. It has published this report annually ever since, along with many books on environmental topics. While many conservative sources have soft-pedaled the environmental cause, the Worldwatch Institute, headed since its inception in 1974 by Lester R. Brown, has continued to sound the alert. With its work published in 30 languages, sent to the governments of more than 100 countries and used as a text in some 500 college and university courses, the Worldwatch Institute is an organization of undeniable reliability, vast resources and solid reputation, though currently of controversial in a world of untoward optimism for limitless economic growth. Regarding the question of the present state of the world, Brown, a man who was once a farmer and who has spent most of his life studying the problems of global stewardship, summed up our present situation this way in *State of the World 1996*: "The effort now needed to reverse the environmental degradation of the planet and ensure a sustainable future for the next generation will require mobilization on a scale comparable to World War II."